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THE

ONTARIO WATER RESOURCES

COMMISSION

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Township of Cumberland :
disposal of milk wastes by
Greenwood Cheese Company.
80904

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Township of Cumberland :
disposal of milk wastes by
Greenwood Cheese Company.

80904

September 9, 1971.

W. Williamson,
Waste Management Branch,
Department of Engrgy and
Resources Management,
880 Bay Street,
TORONTO 5, Ontario.

T. J. Yakutchik, Supervisor,
Surveys and Projects Branch,
Division of Water Resources,
135 St. Clair Avenue West,
TORONTO 195, Ontario.

TOWNSHIP OF CUMBERLAND -
DISPOSAL OF MILK WASTES BY GREENWOOD CHEESE COMPANY

At the request of our Division of Industrial Wastes, we have completed a study into the practice by Greenwood Cheese Company of disposing of milk and whey wastes into fractured bedrock formations in the Township of Cumberland. A copy of the report is attached for your information and action.

It is our opinion that such practices are unacceptable because of the potential that they present for ground-water and surface-water pollution. Your attention is drawn to our recommendation that the Waste Management Branch disallow the disposal of the company's wastes by this method.

AAS/tc
Attach.

.....
T. J. Yakutchik, Supervisor,
Surveys and Projects Branch,
Division of Water Resources.

c.c. A. K. Watt
K. E. Symons
J. R. Barr
D. P. Caplice
Central Records

KS → DJ

ONTARIO WATER RESOURCES COMMISSION

REPORT ON FIELD INVESTIGATIONS

DATE OF EXAMINATION: July 28, 1971.

PLACE: Township of Cumberland - Community of Sarsfield

MATTER INVESTIGATED: Waste Disposal Operation,
Greenwood Cheese Factory

AT REQUEST OF: Division of Industrial Wastes

INSPECTION MADE IN COMPANY WITH:

OTHER PARTIES SEEN:

REPORT TO BE SENT TO: A. K. Watt
K. E. Symons
J. R. Barr
D. P. Caplice (2)
J. D. Heamm, Waste Management Branch.
Surveys and Projects Branch (3)
Central Records

F.R. Campbell

REPORT BY: for F. R. CAMPBELL, GEOLOGIST.

NOTE: This completed form to be attached to each report.

REPORT

Ontario Water Resources Commission

Municipality TOWNSHIP OF CUMBERLAND Date of Inspection July 28, 1971.

Re: COMMUNITY OF BARRFIELD, WASTE DISPOSAL OPERATION, GREENWOOD CHEESE FACTORY

Field Inspection by F. R. CAMPBELL Report by F. R. CAMPBELL

INTRODUCTION

At the request of the Division of Industrial Wastes, an investigation was conducted to determine if the waste disposal practices of the Greenwood Cheese Factory have contaminated or pose a threat to ground water in the area of the disposal site. The factory, located on lot 10, concession 5, Township of Cumberland, disposes of wash waters and some whey wastes by emptying the mixed material into a rock fracture located on a small hill in lot 10, concession 6, Township of Cumberland. No evidence of surface-water contamination has been discovered as a result of this practice, nor have there been any complaints of water-quality changes in the well supplies of the area.

The practice of dumping between 5,000 and 7,000 gallons of waste water daily into a rock fracture has been carried on by the company for five to six years. Prior to this, the water was collected and allowed to drain into a large tile field near the factory. This system was unsatisfactory in that the tile field was frequently flooded and finally, when a pipe to the tile field broke, hauling of the

waste began. The waste water has 2,800 ppm BOD, 735 ppm TOC, high suspended and dissolved solids and high coliform counts. It is dumped into the fracture at a rate of approximately 180 gpm with no ponding or apparent filling of the fracture.

GEOLOGY

The Greenwood Cheese Factory is located on an elevated clay plain which is regularly interrupted by ridges of rock or sand. The disposal site is located about two miles east of the plant on a limestone ridge of the Ottawa formation. The ridge is flanked by thick clay beds which overlie the bedrock. Disposal of the waste water takes place into a pair of rock fractures which may be associated with the post-Ordovician faulting of the area. The fractures parallel the Orleans fault which strikes east-southeast about one mile north of Sarafield (Figure 2).

HYDROLOGY

Surface-water flow in the vicinity of the disposal site is in a southeastern direction toward Bear Brook. No streams appear to rise around the limestone ridge on which the site is located, perhaps indicating that the area is a zone of ground-water recharge.

Ground-water supplies in the area are developed from bedrock aquifers in the Ottawa formation. Yields are

low and the water is often salty or sulphurous. According to Sobanski[1], the major faults in the Sarsfield area appear to be hydraulically sealed. However, fracture systems within the Ottawa formation may not necessarily be hydraulically sealed from the aquifer zones within that formation. Analyses of samples of well waters in the vicinity of the dump site (Figure 1) did not indicate that contamination of these supplies has occurred. Discharge of the waste water may not be to these wells, but could be to wells miles away through an intricate fracture pattern or to a tributary of Bear Brook.

CONCLUSIONS

The dumping of up to 7,000 gallons of waste water per day into a fracture in the Ottawa formation near Sarsfield has not to date appeared to contaminate surface water or ground water in the area. However, because of the nature of the fracture system receiving the wastes, the waste water may eventually discharge into local or distant aquifers or streams. The effect of such discharge is difficult to assess and will depend on the degree of dilution of the waste which would occur in transit.

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[1] Sobanski, A. A., Ground Water Survey, The Regional Municipality of Ottawa-Carleton, OWRC, 1970.

It may be concluded that this disposal practice is unacceptable. Permission to discharge this industrial liquid waste into an unknown ground-water system could set a precedent that would be difficult to refute. Discharge of a more readily detectable waste such as an oil-water emulsion or a poisonous waste would, in theory, have to be acceptable if the practice of Greenwood Cheese is allowed to continue.

RECOMMENDATIONS

It is recommended that:

(1) the disposal of wash water by the Greenwood Cheese Company into rock fractures at lot 10, concession 6, Township of Cumberland, be discontinued;

(2) the use of this fracture system for the disposal of any liquid wastes be disallowed; and

(3) the Waste Management Branch consider the above recommendations and take appropriate action.

Prepared by: F. R. Campbell, Geologist,
Surveys and Projects Branch.

T. J. Zakutchik

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T. J. Zakutchik, Supervisor,
Surveys and Projects Branch,
Division of Water Resources.

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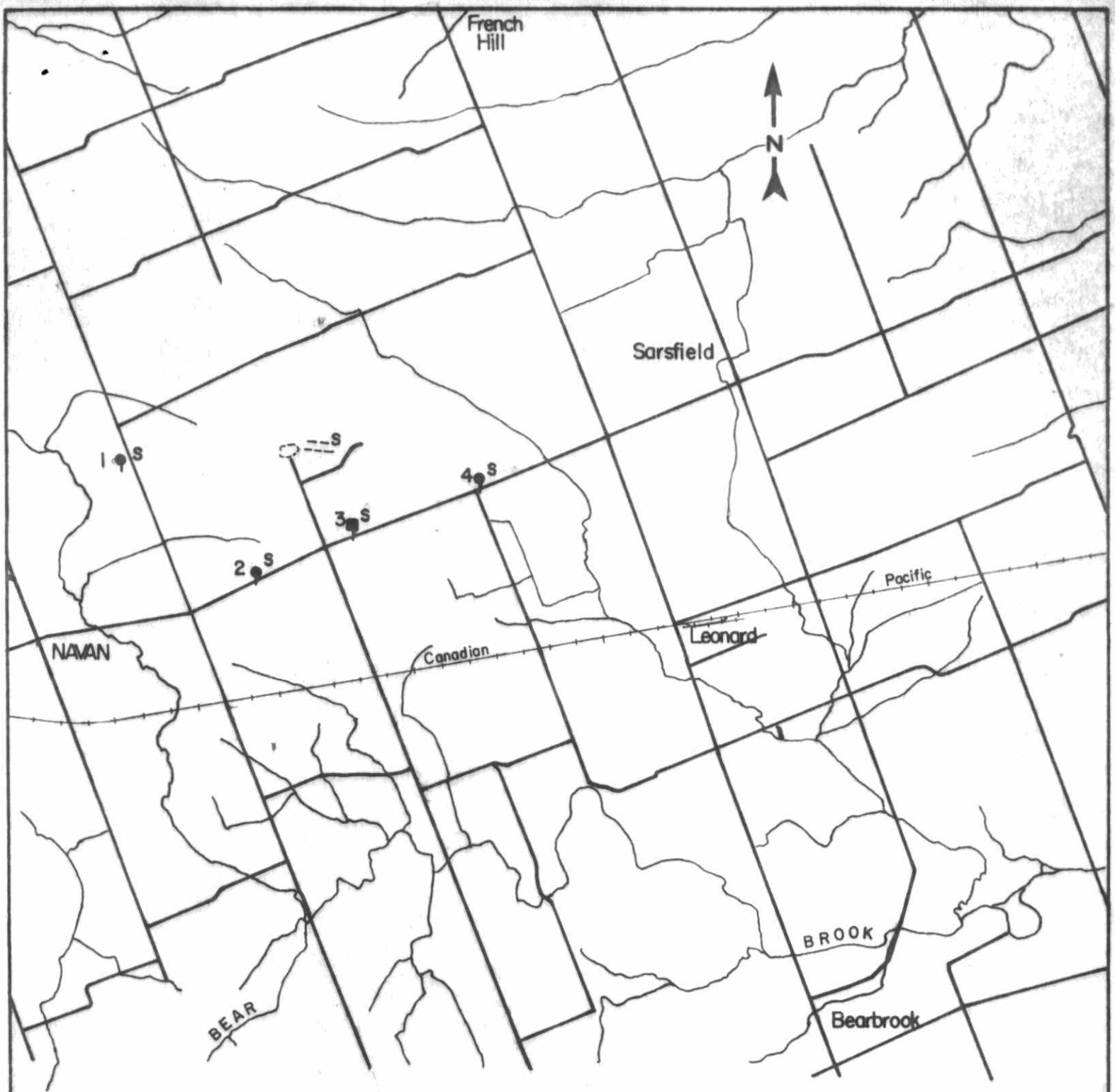

LEGEND

- Drilled well in bedrock
- S Sample location
- Dump (closed)
- Fractures used for disposal
- Dug well to bedrock

ONTARIO WATER RESOURCES COMMISSION

TOWNSHIP OF CUMBERLAND

COMMUNITY OF SARSFIELD

WASTE DISPOSAL OPERATION

GREENWOOD CHEESE FACTORY

DATE: JULY 71	SCALE:	DRAWING NO.
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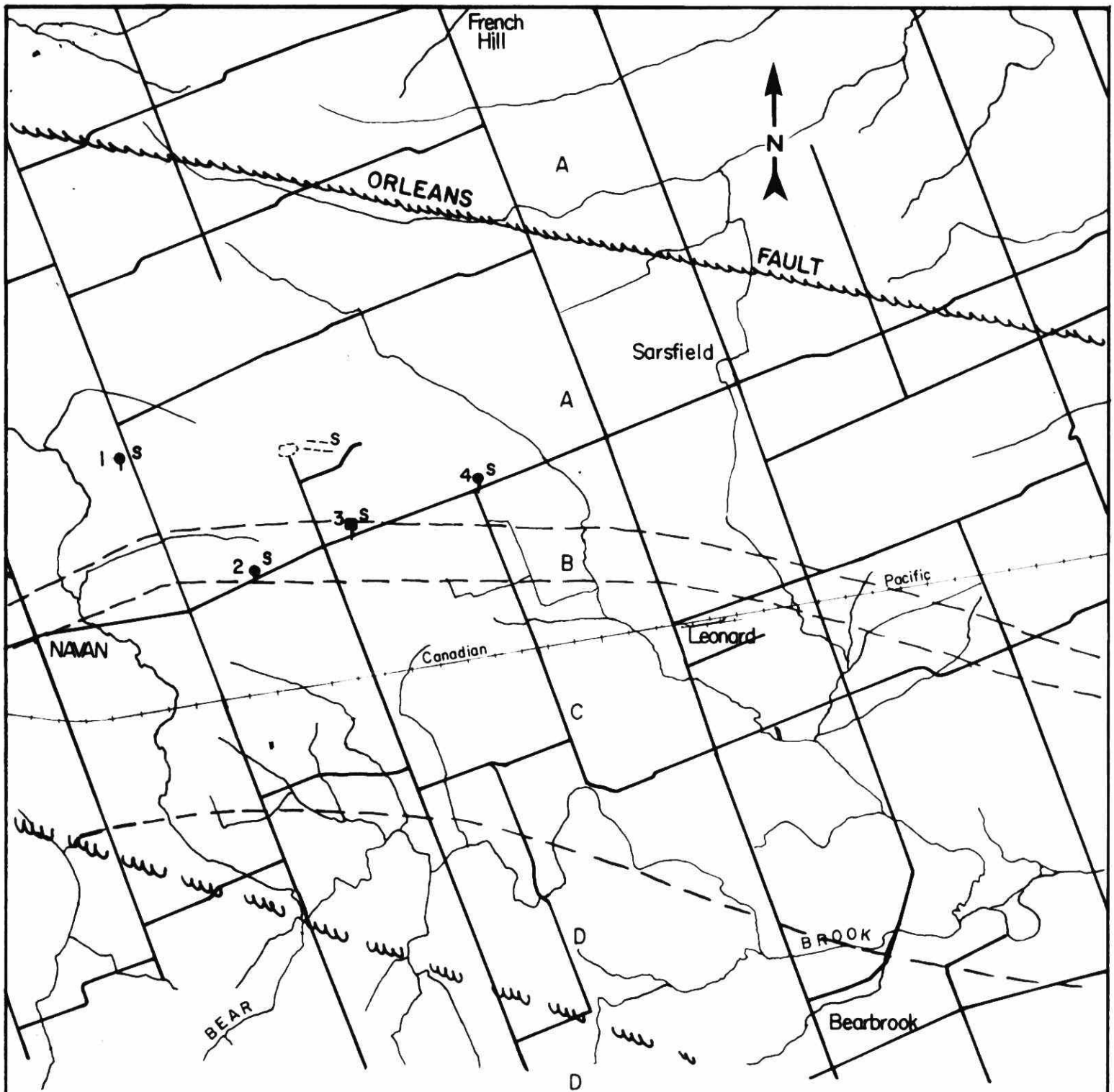

LEGEND

- Drilled well in bedrock
- S Sample location
- Dump (closed)
- Fractures used for disposal
- Dug well to bedrock

- A OTTAWA FORMATION
- B EASTVIEW FORMATION
- C BILLINGS FORMATION
- D CARLSBAD FORMATION
- FAULTS (Known)
- (Assumed)

ONTARIO WATER RESOURCES COMMISSION

TOWNSHIP OF CUMBERLAND

COMMUNITY OF SARSFIELD

WASTE DISPOSAL OPERATION

GREENWOOD CHEESE FACTORY

BEDROCK GEOLOGY

DATE JULY 71 SCALE DRAWING NO

BY SFS 1 in = 0.8 mi II

THE

ONTARIO WATER RESOURCES

COMMISSION